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10/070,492	03/07/2002	Shigemasa Takagi	01044/20003	6837

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EXAMINER	
KNABLE, GEOFFREY L	

ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/070,492	TAKAGI, SHIGEMASA	
	Examiner	Art Unit	
	Geoffrey L. Knable	1733	

-- The MAILING DATE of this communication app ars on the cover sh et with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 28-54 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 28-54 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 6.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 28-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 28, line 5, a step is described of winding the ribbon "on an outer peripheral surface of *drums*." It however is not clear exactly what is required by this reference to the plural "drums" in this context. Is this claim requiring that plural body plies are being produced? If so, then it would seem that the preamble is inconsistent with the body of the claim. This could also be read as defining that plural drums are necessary to build a single body ply – in fact this would seem to be the most reasonable reading of the present language. This however is inconsistent with the invention as described in the specification. This claim is therefore considered to be indefinite and clarification is required. An analogous ambiguity is presented by the reference to "drums" at line 6 of device claim 35.

In claim 30, line 2, no antecedent has been established for "said wrappers".

Claims 33 and 34 each depend from cancelled claim 1.

In claim 42, line 2, no antecedent has been established for "said frame".

In claim 47, lines 3-4, and claim 54, lines 3-4, no antecedent has been established for "the pair of drums having the same outer diameter."

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 28-30, 33-41, 45, 47, 49, 51, 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 960,488 to Trainer et al. taken in view of Converse et al. (US 1,337,690).

GB '488 discloses a method of producing a ply material for a pneumatic tire including the steps of manufacturing a ribbon of a predetermined width dimension in the form of a cord having a rubber covering applied thereto (e.g. note fig. 1), spirally winding said ribbon on an outer peripheral surface of a drum (19) with bonding of lateral edges of said ribbon to each other (e.g. page 2, lines 84-116; page 4, lines 50-59) to manufacture a wrapper. The reference further indicates that the dimensions of the wound ply can be equal to the dimensions required for a single tire ply (e.g. page 3, lines 78-85). Further, after the step of manufacturing the wrapper, the wrapper is cut along the longitudinal direction of the drum, this cut being made at a slight angle to the drum axis so that it is substantially orthogonal to the longitudinal direction of the spirally wound ribbon wound on said drum – note esp. fig. 7 and page 3, lines 52-64; page 4, lines 65-75. Insofar as the sheet is on a cylindrical drum when cut, this will result in the cut being made "along a gentle curve" as claimed. This reference thus teaches all of the requirements of claim 3 except that it does not suggest winding on "drums" (i.e. plural) as claimed. Although it is not entirely clear what this is intended to require as has been noted in the preceding rejection, it has been assumed that it in some manner requires that plural drums be present on which the ribbon can be successively wound as described in the specification.

Converse et al. is also directed to forming tire plies by spiral winding rubberized cord on a drum followed by cutting the ply off the drum and in particular indicates that it is desirable to provide a plurality of drums rather than a single drum so that one drum may be wound while the other is having the ply cut and removed from the drum so as to improve productivity – note esp. page 1, lines 10-45 and page 2, lines 14-20. To include plural drums in the GB '488 process rather than a single drum would therefore have been obvious motivated by the expectation of improved productive capacity of the machine.

As to claim 29, GB '488 clearly suggest cutting at one location to form a ply for one tire as already described. As to claim 30, it is first noted that it is exceedingly well known and understood in this art that tire body or carcass plies in tires are almost always formed of different widths (to avoid ply end stress concentration) for the same tire (when plural plies are used) and further are off course clearly provided in different widths for different tire sizes. The desire or need to form different width plies is thus readily apparent and well understood. As such, it is submitted that the ordinary artisan would have found it obvious to use different drums of different peripheral dimensions (since it is obviously the drum periphery or drum diameter that controls the ply width) in order to enable the formation of different tire ply widths, only the expected results being achieved.

As to claims 33-34, GB '488 suggests that the cut ends be lined up along the line of cut, which as already noted is at a right angle to the ribbon longitudinal direction – note esp. page 3, lines 65-67 of GB '488.

As to claim 35, this claim in essence defines the presence of corresponding devices for performing the claim 1 steps, the device defined by this claim being therefore considered obvious for the same reasons advanced with respect to claim 1 above. As to claim 36, GB '488 would clearly suggest providing a winding guide axially movable relative to the drum – e.g. note fig. 3. As to claim 37, GB '488 does not appear to suggest means for holding the winding start end – it however is taken to be well known and conventional per se in this art to include means in a winding drum to hold material to the drum if necessary for subsequent winding, inclusion of such being obvious and leading to only the expected results. As to claim 38, cutting the ribbon end is clearly taught by GB '488 (e.g. page 3, lines 26-27), a mechanism to effect this being therefore implicit or certainly obvious from this teaching. As to claims 39-40, as already noted, GB '488 is considered to suggest cutting along a gentle curve in order to correct for the spiral angle of the ribbon. This reference further indicates that this cut is made by a traversing cutter 56 (fig. 7) but specifics of this cutting operation are not given, i.e. it is not described how the correction is attained. It however is submitted that it would have been readily apparent to the ordinary artisan that there must necessarily be relative circumferential motion between the traversing cutter and the drum surface in order to effect the necessary angle correction. Further, it is submitted that the ordinary artisan would have readily appreciated that this relative motion can be achieved two ways – circumferentially move the cutter or circumferentially move the drum, i.e. by keeping the drum still and effecting a circumferential motion of the cutter during its traversing motion or by only traversing the cutter and introducing the necessary relative

motion by slightly rotating the drum relative to the traversing cutter – selection of either expedient would have been prima facie obvious manners of effecting the necessary angle correction and would lead to only the expected results and would satisfy claims 39 and 40. As to claims 41 and 53 (as well as 47), the inclusion of blade grooves to guide the cutter along the desired cutting line would have been obvious in light of the grooves 37 of Converse et al.

As to claims 45, 47 and 54, as already noted Converse et al. is considered to render obvious providing drums at different positions including one position for winding and the other for cutting and peeling, the drums being alternated among positions. As to claim 49, GB '488 suggest rolling ahead of cutting using roller 54 (fig. 6) – since this must traverse like the cutter, to include such in combination with the cutting means would have been obvious if desired in order to minimize the number of separate traversing means required. As to claim 51, the teachings of Converse et al. would suggest/render obvious winding in both directions as claimed – note page 1, line 105 – page 2, line 14.

4. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 960,488 to Trainer et al. taken in view of Converse et al. (US 1,337,690) as applied above, and further in view of Edwards (US 4,126,720) and Krusemark (US 1,422,451).

As to claims 31 and 32, GB '488 only appears to describe a single cut. Edwards is directed to a very similar process in which a tire carcass ply is made by spirally winding a ribbon on a drum followed by cutting and further even describes, like GB '488,

correcting the angle of cut so that the cut is orthogonal to the ribbon – note esp. fig. 9. Further, this reference indicates an understanding in this art that a single cut can be made to make a single sheet or two cuts can be made with the ply on the drum to produce two sheets if desired – note esp. col. 9, lines 4-28. Krusemark provides a similar teaching of forming two plies from a single winding – note esp. page 1, lines 70-79. In light of these teachings, it is submitted that the ordinary artisan would have found it to have been an obvious alternative to form two plies by cutting at two positions rather than a single ply if desired, only the expected results being achieved. The particular relative location of the cuts, and thus sheet dimensions, would have been a matter of routine and obvious selection for the artisan dictated by the sheet dimensions needed and desired.

5. Claims 30, 42-44, 46, 48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 960,488 to Trainer et al. taken in view of Converse et al. (US 1,337,690) as applied above, and further in view of Perkins (US 5,192,390).

As to claims 42-44, the ply must clearly be peeled from the drum after cutting and removed although specifics thereof are not given. Perkins is also directed to forming a tire ply by spiral winding of a ribbon followed by cutting and in particular suggests the inclusion of means to raise a lip of the material at the cut as well as a clamp and moving tray to peel and remove the ply – note esp. fig. 9. To include a mechanism to peel the ply as well as a moving tray to support the ply while being peeled would therefore have been a prima facie obvious way to effect ply removal in this art. As to claims 30 and 46, as already noted, the inclusion of different drum diameters is considered to have been

obvious in light of the obvious desire to form different ply dimensions - note Perkins at col. 1 further evidences this well known desire to form different sizes, this typically being done with for example different drums although providing a single drum mechanism that can alter the drum dimensions is taught to be desirable. Further, in the tire building art, it is very well known to provide building drums with the capability of varying their diameters. To provide different drum diameters either as separate drums or using an adjustable drum would therefore have been obvious and lead to only the expected results. Claim 30 has also been included within this rejection insofar as Perkins provides additional evidence supporting the known desire to form different ply dimensions. As to claim 48, it is considered that peeling bars are known and conventional per se, their use to aid the necessary peeling operation therefor being obvious. As to claim 50, suitable adjusting/control means for any modern material handling device would have been obvious and routinely provided.

6. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over GB 960,488 to Trainer et al. taken in view of Converse et al. (US 1,337,690) as applied above, and further in view of Bayne et al. (US 885,219).

As to claim 52, GB '488 extrudes over the cords but does not suggest beforehand untwisting to coat each individual strand and retwisting. Bayne et al. clearly teaches untwisting, coating with rubber and then retwisting in order to form cords that will be subsequently formed into fabrics, this being said to improve fabric flexibility and durability by assuring that the individual strands do not frictionally contact one another (note the entire reference). To so treat cords to be formed into the ribbon in EP '488

would therefore have been prima facie obvious and lead to an expected improved durability.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey L. Knable whose telephone number is 571-272-1220. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Geoffrey L. Knable
Primary Examiner
Art Unit 1733

G. Knable
February 7, 2004